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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/076,516	02/19/2002	Yoshihisa Yonezawa	YONE3009/EM	3425

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BACON & THOMAS, PLLC
625 SLATERS LANE
FOURTH FLOOR
ALEXANDRIA, VA 22314

EXAMINER

DONG, DALEI

ART UNIT	PAPER NUMBER
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2875

DATE MAILED: 03/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/076,516	Applicant(s) YONEZAWA ET AL.	
	Examiner Dalei Dong	Art Unit 2875	<i>AW</i>

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) 18-24 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 and 25-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☒ Certified copies of the priority documents have been received in Application No. 10/076,516.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.
2. Claims 1-17 and 25-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,811,920 to Wada in view of U.S. Patent No. 2,683,833 to Zaphiropoulos in further view of U.S. Patent No. 4,982,134 to Aono.

Regarding to claims 1-17 and 25-29, Wada discloses in Figure 1, “reference numeral 1 represents a rectangular anode substrate 1 forming a portion of the envelope. Anode conductors and wire conductors (not shown), connected to the anode conductors, are formed on the anode substrate 1. Moreover, a fluorescent layer is applied to the upper surface of the anode conductor so that an anode serving as a light-emission display portion is formed. A control electrode (not shown) is formed on the anode” (column 3, lines 12-20).

Wada also discloses in Figure 1, “a plurality of filament-shape cathodes 2 are stretched to run parallel to one another at positions above the control electrodes of the anode substrate 1. Each of the cathodes 2 is stretched in the lengthwise direction of the rectangular anode substrate 1. The two ends of each of the cathodes 2 are secured to the two lengthwise directional ends of the anode substrate 1 by stretching members. The

stretching member includes a support member 3 for securing an end of the cathode 2 and an anchor member for elastically holding the other end of the cathode 2 so as to apply a tension to the cathode 2" (column 3, lines 21-32).

Wada further discloses in Figure 1, "two cathode attaching plates 4a and 4b are disposed above the end of the rectangular anode substrate 1. Each of the cathode attaching plates 4a and 4b is a plate elongated in a direction (that is, the lengthwise direction of the anode substrate 1) perpendicular to the lengthwise direction of the cathodes 2, the cathode attaching plates 4a and 4b being disposed apart from each other at a predetermined interval in the lengthwise direction of the cathodes 2. The cathode attaching plates 4a and 4b are made of 426-alloy having a thermal expansion coefficient approximating that of glass" (column 3, lines 33-43).

Wada furthermore discloses in Figures 1 and 2, "a first support member 3a, which is a first stretching member, is secured to the first cathode-attaching-plate 4a located at an inner position with respect to the lengthwise direction of the cathodes 2. The first support member 3a has a base portion 11a which is secured to the first cathode-attaching-plate 4a. A substantially L-shape connection portion 13a is stood erect from the base portion 11a. A securing portion 12a is formed at the leading end of the connection portion 13a. An end of the cathode 2a is, by welding or the like, secured to the securing portion 12a. In this embodiment, the first support member 3a has the common base portion 11a, two connection portions 13a and two securing portions 12a so as to stretch two cathodes 2a" (column 3, line 65 to column 4, line 10).

Wada finally discloses in Figures 1 and 2, “a second support member 3b, which is a second stretching member, is secured to the second cathode-attaching-plate 4b located at an outer position with respect to the lengthwise direction of the cathodes 2. The second support member 3b has a base portion 11b which is secured to the second cathode-attaching-plate 4b. A substantially L-shape connection portion 13b is stood erect from the base portion 11b. A securing portion 12b is formed at the leading end of the connection portion 13b. An end of the cathode 2b is, by welding or the like, secured to the securing portion 12b. In this embodiment, the second support member 3b has the common base portion 11b, four connection portions 13b and four securing portions 12b so as to stretch four cathodes 2a” (column 4, lines 11-23).

However, Wada does not disclose the anode substrate or base is made of electrically insulating material and the support member or at least one metal film and at least one additional member is made of metal material. It is old and well known in the art to choose an insulating material for the anode substrate and the supporting member made of metal material. Further, Applicant has not establish that the type of material is critical to the invention and hence, the proper type of material can be determined by one having ordinary skill in the art.

In addition, Zaphiropoulos teaches in Figure 2, “about the support or frame 41 and the base plate 29 there are stretched electrically conducting means which appear as individual strands 51 (Fig. 2) when viewed from the electron beam source. Affixed to the face of the target backing 29 against which the electron beam is adapted to impinge is a pair of insulating spacer elements respectively designed by the number 53 and 55 (Fig.

3). These spacers, as well as the translucent base plate 29 maybe comprise a boro silicate glass having an extremely low coefficient of expansion" (column 4, lines 47-58).

Also, Aono teaches in Figure 3, "an image display device according to a first embodiment of the present invention is shown. In the drawings, reference number 11 designates a conductive wire cathode coated with barium oxide or another material having a thermionic emissions capability; 12a and 12b are insulated support frames positioned on both sides of back electrode 15 and used to support and clamp both ends of wire cathodes 11; 13 is the control electrode used to control the electron beam emitted from the wire cathodes 11 to form the defined image; 14 is the fluorescent material which emits light and displays an image when the electron beam which has passed through the control electrode 13 collides into the fluorescent material 14; 15 is the back electrode, which is installed so that thermions can be easily emitted from the wire cathodes 11; 16a and 16b are the housing; 17a and 17b are the rod-shaped insulated members which determine the height of the wire cathodes 11; and 18 is the spring which applies a load and tension to the wire cathodes 11. For example, insulated support frames 12a and 12b and rod-shaped insulated members 17a and 17b are made of ceramics, back electrode 15, springs 18 and bottom portion 16b of the housing are made of metal, and cover portion 16a of the housing is made of glass" (column 4, lines 9-33).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have construct the anode substrate and supporting member of Wade with electrically insulating material of Zaphiropoulos and metal material of Aono

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respectively in order to improve the deflecting and focusing electrodes structures and eliminate uneven brightness problems that cause image defects

Response to Arguments

3. Applicant's arguments with respect to claims 1-17 and 25-29 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following prior art are cited to further show the state of the art of composition of a electron tube.

U.S. Patent No. 2,813,772 to Zaphiropoulos.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dalei Dong whose telephone number is (571)272-2370. The examiner can normally be reached on 8 A.M. to 5 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sandra O'Shea can be reached on (571)272-2378. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

D.D.
February 15, 2004



ALAN CARIASO
PRIMARY EXAMINER